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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kunzler & McKenzie 8 EAST BROADWAY SUITE 600 SALT LAKE CITY, UT 84111			ADAMS, CHARLES D	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/688,217	Applicant(s) YOSHIDA, ISSEI	
	Examiner Charles D. Adams	Art Unit 2164	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. In response to communications filed on 20 March 2007, claims 1, 3, 6, 10, and 14 are amended and claim 8 is cancelled. Claims 1-7 and 9-16 are pending in the application.

Claim Objections

2. Claim 13 is objected to because of the following informalities: the claim contains the limitation "said frequency of the word", yet in the parent claims, only a "number of occurrences" is being determined.

3. Claim 14 is objected to because of the following informalities: the third limitation states "determining whether the word is unnecessary for identifying the given category on the basis of the recognized frequency". However, because of the amendment, there is now a recognized "number of occurrences" rather than a recognized "frequency". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7, 10-12, and 14-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Esposito et al. ("A Machine Learning Approach to Web Mining") in view of Liu et al. (US Pre-Grant Publication 2003/0154181).

As to claim 1, Esposito et al. teaches a document automatic classification system, comprising:

List generation means for generating a word list for each of at least two categories by extracting words from a learning document set (see page 192, section 3, paragraph 1 and Figure 1);

unnecessary word determination means for relatively determining an unnecessary word for a category (see page 193, paragraph 3)

Esposito et al. does not explicitly teach on the basis of a number of occurrences of a given word within at least one other category by using the list generated by said list generation means; and

Liu et al. teaches on the basis of a number of occurrences of a given word within at least one other category by using the list generated by said list generation means (see paragraphs [0070]-[0075]. "discriminative features are those that occur more frequently inside a particular cluster than outside that cluster, whereas non-discriminative features are those that have similar occurrences frequencies among all the clusters. What the metric $DFM(f_i)$ reflects is exactly this disparity in occurrences frequencies of feature f_i among different clusters. In other words, the more discriminative the feature f_i , the larger value the metric $DFM(f_i)$ takes", paragraph [0074]).

Esposito et al. as modified teaches:

Means for generating a document classification catalog by eliminating words determined to be unnecessary words from each of the word lists (see Esposito et al. page 193, paragraph 3. The first 'N' words per dictionary are chosen as representative words. The others are unnecessary, and are not included in the list of representative words. Therefore, they are eliminated. Also see Esposito et al., Table 1, page 194).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Esposito et al. by the teaching of Liu et al., since Liu et al. teaches that "the document clustering method is autonomous, unsupervised, and performs document clustering without the requirement of domain-dependent background information, nor predefined document categories or a given list of topics" (see paragraph [0037]).

As to claim 2, Esposito et al. as modified teaches wherein said list generation means generates a list indicating a frequency of appearance of a given word for each category (see page 193, paragraph 2, "class dictionary", and Figure 1, Class Dictionaries. Also see Liu et al., paragraph [0072], equation 12. A list including the frequency of occurrence for each feature in each class is determined).

As to claim 3, Eposito et al. as modified teaches wherein said unnecessary word determination means extracts a word belonging to a given category and determines it to be an unnecessary word in response to the word having a greater number of

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occurrences in another category than is allowed by a given standard (see Liu et al. paragraph [0074], and equations 11, 12, and 13 in paragraphs [0072]-[0073]. The most frequent class that a feature word is determined, and compared with the frequency of the other classes. A feature word is chosen not to be discriminating if it occurs too often in other classes. "In an illustrative embodiment, discriminative features are defined as those whose DFM values exceed the predefined threshold T_{df}).

As to claim 4, Esposito et al. as modified teaches wherein the given standard is determined according to a predetermined threshold (see Liu et al. paragraph [0074]).

As to claim 5, Esposito et al. as modified teaches further comprising:

Document classification means for performing classification processing for classification target documents by using said document classification catalog (see Esposito et al. page 194, section 4, paragraph 1).

As to claim 6, Esposito et al. as modified teaches a document automatic classification system, comprising:

A classified document set storage device for storing documents classified according to at least two categories (see page 191, section 2, and page 194, Table 1);

A category table generation unit for generating a table (see page 193, paragraphs 1-2, "Class Dictionary", and Figure 1), the table comprising:

Word lists corresponding to each of the at least two categories wherein the word lists are generated by extracting words from a learning document set (see page 193, paragraphs 1-2, "Class Dictionary" Figure 1, and Table 1); and

Frequencies comprising a number of occurrences of each extracted word within the learning document set (see page 193, first bullet, "MaxTF(I, t), the maximum value of TF(I, j, t) on all training documents of class I");

An unnecessary word elimination unit for eliminating an unnecessary word from a category in the table (see page 193, paragraph 3)

Esposito et al. does not teach on the basis of a number of occurrences within at least one other category of a given word,

Liu et al. teaches on the basis of a number of occurrences within at least one other category of a given word (see Liu et al. paragraphs [0070]-[0075]);

Esposito et al. as modified teaches wherein said unnecessary word elimination unit extracts a word belonging to a given category and eliminates the word as an unnecessary word from said table in response to the word appearing more frequently in another category than is allowed by a given standard (see Esposito et al. page 193, paragraph 3, and Liu et al. paragraphs [0074]);

A classification catalog storage device for storing the table from which the unnecessary word was eliminated by said unnecessary word elimination unit (see page 193, section 3. Also see Esposito et al., Table 1, page 194).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Esposito et al. by the teaching of Liu et

al., since Liu et al. teaches that “the document clustering method is autonomous, unsupervised, and performs document clustering without the requirement of domain-dependent background information, nor predefined document categories or a given list of topics” (see paragraph [0037]).

As to claim 7, Esposito et al. as modified teaches:

A classification target document storage device for storing classification target documents to be classified (see page 197, last paragraph); and

A document classification processing unit for performing classification processing for the classification target documents stored in said classification target document storage device by using said table stored in said classification catalog storage device (see paragraph [0197]).

As to claim 10, Esposito et al. teaches an unnecessary word determination method in a document automatic classification system, comprising the steps of:

Generating a word list for each of at least two categories by extracting words from a learning document set (see page 192, section 3, paragraph 1), the word list containing information on a frequency of appearance of each extracted word within each category (see page 193, paragraphs 1-2, “Class Dictionary”, Figure 1, and Table 1);

Determining an unnecessary word for a category (see page 193)

Esposito et al. does not explicitly teaches on the basis of a relative number of occurrences of a given word within at least one other category;

Liu et al. teaches on the basis of a relative number of occurrences of a given word within at least one other category (see Liu et al. paragraphs [0070]-[0075]);

Esposito et al. as modified teaches:

Eliminating words determined to be unnecessary words from each of the word lists (see Esposito et al. page 193, paragraph 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Esposito et al. by the teaching of Liu et al., since Liu et al. teaches that “the document clustering method is autonomous, unsupervised, and performs document clustering without the requirement of domain-dependent background information, nor predefined document categories or a given list of topics” (see paragraph [0037]).

As to claim 11, Esposito et al. as modified teaches wherein, in said step of determining the unnecessary word, the unnecessary word is determined according to whether one word selected from the given category appears in said other categories more frequently than is allowed by a given standard (see Liu et al. paragraph [0074], and equations 11, 12, and 13 in paragraphs [0072]-[0073] and the arguments in regards to claim 3).

As to claim 12, Esposito et al. as modified teaches wherein said given standard is a value obtained from a predetermined given threshold (see Liu et al. paragraph [0074]).

As to claim 14, Esposito et al. teaches an unnecessary word determination method in a document automatic classification system, comprising the steps of:

Acquiring information on words from a document set, classifying the words according to category, and storing the words in a storage device (see page 193, paragraphs 1-2, "Class Dictionary", Figure 1, and Table 1);

Esposito et al. does not explicitly teach recognizing a number of occurrences within at least one other category of a word belonging to a given category on the basis of the acquired information;

Liu et al. teaches recognizing a number of occurrences within at least one other category of a word belonging to a given category on the basis of the acquired information (see Liu et al. paragraphs [0070]-[0075]);

Esposito et al. as modified teaches determining whether the word is unnecessary for identifying the given category on the basis of the recognized frequency (see Esposito et al. page 193, paragraph 3); and

Generating a document classification catalog by eliminating words determined to be unnecessary words (see Esposito et al. page 193, paragraph 3).

As to claim 15, Esposito et al. teaches further comprising storing said classification catalog into the storage device (see page 193, paragraph 3).

As to claim 16, Esposito et al. as modified teaches further comprising the step of performing classification processing for classification target documents by using the classification catalog stored in said storage device (see page 197, last paragraph).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Esposito et al. ("A Machine Learning Approach to Web Mining") in view of Liu et al. (US Pre-Grant Publication 2003/0154181), and further in view of Grasso et al. (US Pre-Grant Publication 2004/0254911).

Esposito et al. as modified teaches the system according to claim 6.

Esposito et al. as modified teaches wherein said table contains information on each word, a frequency of appearance of each word (see page 193, "Class Dictionary", Figure 1, and Table 1),

Esposito et al. as modified does not teach and a part of speech of each word.

Grasso et al. teaches and a part of speech of each word (see paragraph [0037]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Esposito et al. by the teaching of Grasso et al., since Grasso et al. teaches that "using this information, it is possible to determine whether a word is occurring with above average frequency in a specific text compared with how frequently it appears on average" (see paragraph [0039]).

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Esposito et al. ("A Machine Learning Approach to Web Mining") in view of Liu et al. (US Pre-Grant Publication 2003/0154181), and further in view of Mohan et al. (US Patent 6,970,881).

Esposito et al. as modified teaches wherein said given standard is determined according to said frequency of all words in said other categories (see page 193, section 3, paragraph 3, and Liu et al. paragraphs [0070]-[0075])

Esposito et al. as modified doesn't teach and a total frequency of all words in said other categories.

Mohan et al. teaches and a total frequency of all words in said other categories (see 8:48-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified Esposito et al. by the teaching of Mohan et al., since Mohan et al. teaches that "Concepts having probabilities within a certain range are selected as key concepts to represent the theme, or meaning, of an object. By setting the range, it is possible to dramatically increase precision and recall for objects classification" (see 3:43-47).

Response to Arguments

8. Applicant's arguments with respect to claims 1-7 and 9-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Adams whose telephone number is (571) 272-3938. The examiner can normally be reached on 8:30 AM - 5:00 PM, M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner
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